

What is claimed is:

1. A communication control device comprising:  
an internal communication path connecting a plurality of processor interfaces to each other;  
5 a plurality of processors, one or a plurality of which is connected to each of said processor interfaces;  
a cell distributor provided within said processor interface and connected to one of said processors for transferring a communication cell received from said internal  
10 communication path to the connected processor when the destination of the communication cell is said connected processor; and  
a selector provided within said processor interface and connected to one of said processors for outputting a  
15 communication cell received from the connected processor onto said internal communication path only when said selector possesses transmission rights.
2. The communication control device according to claim 1, wherein said internal communication path connects said cell  
20 distributors and said selectors in a ring.
3. The communication control device according to claim 2, comprising a token cell generator for generating a token cell used to grant said transmission rights to one of said selectors, and outputting said token cell onto said internal  
25 communication path.
4. The communication control device according to claim 3, wherein said token cell generator is said selector.

5. The communication control device according to claim 3, wherein said token cell generator is said cell distributor.

6. The communication control device according to claim 3, wherein said selector outputs a communication cell received from a connected processor onto said internal communication path when said token cell is possessed thereby.

7. The communication control device according to claim 3, wherein said selector outputs said token cell onto said internal communication path after outputting all of the communication cells received from a connected processor.

8. The communication control device according to claim 1, wherein said internal communication path comprises a common bus connected to said cell distributors and said selectors.

9. The communication control device according to claim 8, comprising a transmission rights manager for granting said transmission rights to one of said selectors.

10. The communication control device according to claim 9, wherein, when a request for transmission rights is received from one of said selectors, said transmission rights manager grants transmission rights to said selector after another selector has lost transmission rights.

11. The communication control device according to claim 9, wherein said transmission rights manager is provided in each of said processor interfaces.

12. The communication control device according to claim 11, wherein, when a request for transmission rights is received from one of said selectors, said transmission rights manager

receives information indicating the assignment or loss of said transmission rights from another transmission rights manager.

13. The communication control device according to claim 1, wherein said processor interface comprises a buffer unit  
5 for temporarily storing communication cells transferred to a connected processor from said cell distributor.

14. The communication control device according to claim 13, wherein said buffer unit comprises:

a buffer for temporarily storing communication  
10 cells;  
a cell writer for writing communication cells received from said cell distributor to said buffer; and  
a cell reader for reading the communication cells stored in said buffer and transmitting the communication cells  
15 to said processor.

15. The communication control device according to claim 1, wherein said processor interface comprises a buffer unit for temporarily storing communication cells transmitted from said processor to said selector.

20 16. The communication control device according to claim 15, wherein said buffer unit comprises:

a buffer for temporarily storing communication  
cells;  
a cell writer for writing communication cells  
25 received from said processor to said buffer; and  
a cell reader for reading the communication cells stored in said buffer and transmitting the communication cells

to said cell distributor.

17. The communication control device according to claim 1, wherein said processor interface comprises a format converter for converting the format of communication cells received from another of said processor interfaces via said internal communication path.

18. The communication control device according to claim 1, wherein said processor interface comprises a format converter for converting the format of communication cells to be transmitted to another of said processor interfaces via said internal communication path.

19. The communication control device according to claim 1, comprising a connection switch for connecting said internal communication path to one or a plurality of externals.

20. The communication control device according to claim 19, comprising a format converter for converting the format of communication cells received onto said internal communication path from said externals and the format of communication cells to be transmitted to said externals from said internal communication path.